



US009410731B1

(12) **United States Patent**  
**Rowland**

(10) **Patent No.:** **US 9,410,731 B1**  
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **EXPANDABLE DRAIN PAN**

(56) **References Cited**

(71) Applicant: **J.F.R. Enterprises, Inc.**, Johns Creek,  
GA (US)

U.S. PATENT DOCUMENTS

(72) Inventor: **Jay F. Rowland**, Johns Creek, GA (US)

D32,575	S	4/1900	Stevenson	
872,837	A *	12/1907	Mio	A21B 3/13 220/8
1,487,065	A	3/1924	Irons	
1,584,175	A	5/1926	Irons	
1,915,849	A	6/1933	Crimmel	
2,934,003	A	4/1960	Ladymon	
3,224,216	A	12/1965	Crouch	
3,318,107	A	5/1967	Riley	
3,367,132	A	2/1968	Elliott	
3,480,178	A	11/1969	Morgan	

(73) Assignee: **J.F.R. ENTERPRISES, INC.**, Johns  
Creek, GA (US)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(Continued)

(21) Appl. No.: **14/493,176**

(22) Filed: **Sep. 22, 2014**

FOREIGN PATENT DOCUMENTS

**Related U.S. Application Data**

DE	2650288	5/1978
EP	WO0039512	7/2000
KR	200402748	3/2004

(63) Continuation-in-part of application No. 13/542,866,  
filed on Jul. 6, 2012, now Pat. No. 9,080,786.

(60) Provisional application No. 61/504,767, filed on Jul. 6,  
2011.

*Primary Examiner* — Kevin Murphy  
*Assistant Examiner* — Jonathan Waddy

(74) *Attorney, Agent, or Firm* — Eric W. Cernyar

(51) **Int. Cl.**

**F25D 21/14** (2006.01)

**F24F 13/22** (2006.01)

**F28F 17/00** (2006.01)

**B65D 21/08** (2006.01)

**B65D 1/40** (2006.01)

(52) **U.S. Cl.**

CPC **F25D 21/14** (2013.01); **B65D 1/40** (2013.01);  
**B65D 21/086** (2013.01); **F24F 13/222**  
(2013.01); **F28F 17/005** (2013.01); **Y10T**  
**137/5762** (2015.04)

(58) **Field of Classification Search**

USPC ..... 137/312–314; 62/285, 291; 220/571;  
222/108; 141/86; 184/106; 296/38;  
52/169.3, 169.5–169.7, 198, 209,  
52/302.1, 302.3

See application file for complete search history.

(57)

**ABSTRACT**

An expandable secondary condensate drain pan comprises a drainage basin formed by sidewalls that extend upwardly around a perimeter of the drain pan from a base. An expansion section allows portions of the base and sidewalls to be expanded or compressed. When located along a side of the drain pan, the base of the expansion section may be stepped such that the base at the side of the pan is higher than the base toward the center of the pan, allowing drainage to cascade away from the side of the pan. The expansion section may be strengthened against cracking by a relatively thin coating or film. A method for installing a pre-manufactured expandable secondary condensate drain pan under an air conditioning unit comprises adjusting the size of the drain pan, placing the drain pan on a support, and setting an air conditioning unit on the drain pan.

**20 Claims, 15 Drawing Sheets**

